

THURSDAY, JULY 18, 1878

THEODORE SCHWANN

ON Sunday, June 23 last, a very interesting ceremony took place at the University of Liège, in Belgium, in honour of Schwann, the famous author (with his fellow-worker Schleiden) of the so-called "cell theory." So rapid has been of late years the progress in our knowledge of the minute structure of animals and plants that Schwann's name seems already to belong to the distant past, and not a few biologists appear to have been, up to the last few months, under the impression that the distinguished author of the "Microscopical Investigations into the Identity in Structure and Growth of Animals and Plants" had long ago been laid in the grave. We rejoice to say that, on the contrary, he is alive and to outward appearance hale and vigorous, though he has had some warnings which have led his *confrères* at Liège to celebrate this year, as a sort of premature jubilee, the fortieth anniversary of his professoriate rather than wait till the full tale of fifty years had been told.

Theodore Schwann was born at Neuss, near Düsseldorf, on December 7, 1810. In 1829 he entered the University of Bonn, first as a student of philosophy, but afterwards as one of medicine. The illustrious Johannes Müller was at that time a privat-docent at Bonn, and Schwann, like so many other of the distinguished biologists of the present day, owes much of his success in life to the vivifying influence of that distinguished teacher. From Bonn Schwann migrated to Würzburg and thence to Berlin, whither Müller had been called to fill the chair left vacant by the death of Rudolphi. Here Schwann, working with the support and under the guidance of Müller, carried out several physiological investigations, the most notable of which were those on the respiration of the chick in the egg, on artificial digestion, on the structure of muscular fibre and of elastic tissue, on the contractility of the arteries, on the mechanics of muscular contractions, and on spontaneous generation. All these researches made their mark and added to our knowledge. Many readers will doubtless remember the ancient myograph employed by Schwann, which was exhibited at the collection at South Kensington two years ago. Besides this, Schwann appears to have largely assisted Müller in the experiments and observations necessary for the construction of the well-known text-book of physiology. Lastly, in 1838, he began to publish, in Froriep's "Notizen," the views which had arisen in his mind concerning the cellular structure of organic beings, and in 1839 laid them before the world in a complete form under the title of "Microscopische Untersuchungen über Die Uebereinstimmung in der Structur und dem Wachsthum der Thiere und Pflanzen." It is unnecessary here to point out the immense effect which the "cellular theory" has had on the progress of all branches of biology. It has made itself felt throughout the whole domain of physiology and pathology, and in a very remarkable manner prepared the way for the more recent doctrines of evolution. During the forty years which have elapsed since it was first enunciated, it has undergone considerable changes: it has been hammered by the

blows of repeated labours into a form more durable than that in which it first appeared; but it still remains as the cellular theory. And this at least may be said, that Schwann himself, in expounding his views, kept remarkably clear of the many vagaries in which his immediate followers indulged, and which for a while threatened to make the cellular theory a reproach rather than an honour.

While engaged in these labours Schwann held at Berlin the post of assistant to the Museum, giving as well private courses on histology, and he was on the point of being made Professor Extraordinary when he received an invitation to the chair of General and Descriptive Anatomy at the University of Louvain. This he accepted, and entered upon his duties at the close of the year 1838. In 1848 he was made professor of the same subject in the University of Liège, and here he has remained ever since, exchanging in 1858 his chair for one of Physiology.

During his stay in Liège his life has not been an idle one, but the fame of his earlier labour somewhat throws his later work into the shade, and he is now enjoying the repose which is not only fitting to his age, but which has in every way been most thoroughly earned. The enthusiastic reception which he received at his jubilee from the students of the university showed very clearly how dearly he is loved and how highly he is honoured by those who have still the privilege of being taught by him.

The ceremony of the 23rd began at one P.M., when the Rector of the University delivered in the Aula an oration laudatory of Schwann, at the close of which he unveiled a very successful bust. A large audience was present, among them a considerable number of ladies and students. Prof. Edouard van Beneden then gave an admirable account of the scientific labours which were that day being honoured; after which a student, in a speech which was repeatedly applauded with much enthusiasm, described how greatly Schwann was admired and beloved by his pupils. Then followed the presentation of addresses from various universities and learned bodies. It would be impossible to enumerate these, for they came from all parts of the world, those from Berlin, Vienna, and Heidelberg being especially elaborate; a goodly number arrived from Great Britain. The time of year chosen for the ceremony being unfortunately in the middle of the academical summer session very few representatives were able to attend in person. There were present, however, as bearers of addresses which they delivered with suitable speeches, Prof. Waldeyer, from Strassburg, Prof. Gussenbauer, from Prague, Mr. F. M. Balfour from Cambridge, England (charged personally, in the unavoidable absence of Dr. M. Foster, with congratulations from the Royal Society, from Trinity College, Cambridge, from the Physiological Society, and from the professors and lecturers of the University of Cambridge), and Prof. Pilar, from Agram.

The ceremony was concluded by a genial speech from Schwann, in which he gracefully acknowledged the compliments which he had received. A banquet followed at which the toasts of "The King," "Schwann," "The Strangers," &c., were given, the latter being responded

to by the distinguished biologists present. In the evening a pleasant excursion was made into the surrounding country.

A splendid album had been manufactured at Vienna for presentation to Schwann, containing the photographs of almost all living biologists. Unfortunately it arrived too late to be formally presented at the ceremony. The expense of the bust was defrayed by subscriptions in Belgium, though a few strangers (among them Mr. Darwin) had an opportunity of contributing.

The whole ceremony was extremely interesting and successful, and we trust the hero of it may still live many years in which he may have the pleasure of looking back upon his jubilee, and of feeling that his labours have been appreciated by his age.

A TRANSLATION INTO GERMAN

Grundzüge der Anatomie der wirbellosen Thiere. Von Thomas H. Huxley, LL.D., F.R.S. Autorisirte deutsche Ausgabe, von Dr. J. W. Spengel. (Leipzig, 1878.)

SO far as we know, amongst the many German text-books on anatomy and physiology there is not a single one which is at all carried out on the plan of Huxley's *Manual of the Anatomy of Invertebrated Animals*. The great merits of the work appear to us to be, firstly, that it combines up to a certain point the features of a treatise on comparative anatomy and on zoology, and secondly, that by the introduction of a description of a type selected from each group, the learner is both greatly assisted in the practical study of animal morphology and also supplied with certain definite centres round which to group the multitudinous facts which he learns in the course of his reading. We flattered ourselves that by the translation of this work into German we should to some extent repay our Teutonic neighbours for the many text-books we have received from them. Our belief that this work was likely to be appreciated in Germany has, however, been very rudely dispelled. We learn from the distinguished naturalist who has undertaken the translation, and whose large experience (we believe his name has been before the public for so long a period as two or three years) gives corresponding weight to his opinion that the work is neither a handbook nor a text-book. He informs us in his preface that "he has decided not to give the work the title of handbook, in order to avoid labelling it with a title which it does not deserve" (um dem Buche nicht einen Anspruch unterzuschreiben, den es nicht erheben will). "It is," he goes on to say, "no handbook in the sense customary with us, and indeed can be regarded as a text-book (Lehrbuch) only in the sense that it is intended for learners." In fact, on the unimpeachable authority of Dr. Spengel, Prof. Huxley's *Manual of Invertebrata*, which has already become the acknowledged handbook in England, is quite unworthy of such a position. In this country we have been accustomed in our simplemindedness to think that Prof. Huxley possesses a singular talent for exposition, while his reputation amongst us as an anatomist is based on our belief that his knowledge of anatomical facts is as wide and extensive and as well kept up as his critical judgment is acute, and his treatment of morphological problems broad and original. We have for some time past been under the idea that

Prof. Huxley has had a good deal to do with the progress of animal morphology during the last twenty or thirty years. But we live to learn, and we feel very grateful that a man of Dr. Spengel's standing should show us how imperfect and unequal (lückenhaft und ungleichmässig) is Prof. Huxley's treatment of the subject to which he has devoted his life.

So impressed apparently was Dr. Spengel with the faults of the work which he had obtained permission to translate, that, as he explains in his preface, he asked Prof. Huxley to rewrite the work, in order that the German translation might appear more worthy of the translator's reputation. Singularly enough, Prof. Huxley, with an indifference to the appearance of any translation at all, which must have seemed strange to the translator, declined this modest request. And we gather that he invited Dr. Spengel to modify the earlier chapters (written long ago) in accordance with the views based on later researches, and expounded in the later chapters. The labour involved in such a change was apparently, not congenial to Dr. Spengel, whose energies seem more at home in writing prefatory remarks.

It is with the illustrations, however, even more than with the text of the original, that Dr. Spengel is offended. He expresses the view that the choice of these must have been made on grounds of economy. The larger number are, he says, "derived from the older works of Huxley, and the remainder from the well-known handbook of Owen (aus dem bekannten Owen'schen Handbuche), and other sources." We find some difficulty in understanding the translator's preface at this point. We presume that by "the handbook of Owen" he refers to Owen's "Lectures on the Comparative Anatomy of Invertebrates." We should very much like to know what illustrations are referred to, since, as far as the editions of Owen's lectures obtainable in this country are concerned, none of the figures of that work have been borrowed for Prof. Huxley's *Invertebrata*.

The translator informs us that he has thought fit to set aside many of Huxley's figures and to add new ones from well-known sources. He has, moreover, had a considerable number of the figures redone. In some of these cases we admit that some improvement has been effected by the alteration of the figures. The two figures copied from Ludwig to illustrate the anatomy of *Comatula* are excellent, and the substitution of Butschli's figures of *Pilidium*, for the somewhat erroneous ones of Leuckart and Pagenstecher, effects a decided improvement. In other instances the translator, in his zeal to make the figures clear, appears to have forgotten that it is also desirable to make them true to nature. Thus Fig. 77 does not appear to us to be so true a representation of the appendages of *Astacus* as the original figure of Huxley, which the translator has set aside; and in Fig. 80 the heart and vessels of *Astacus* are very far from being as true to nature as they should be. We think also the translator, in adding new figures, should be careful about the references. In the first two figures he has substituted for those of Huxley—Fig. 9 and 35-37—we find wrong references. On the whole the improvement is not so great as might have been expected. Every one is aware that for years past the illustrations of German scientific works have been far superior to those of English ones.